

WHAT IS CLAIMED IS:

1. A disk drive having a sampled servo system controller and a disk wherein the disk has a plurality of servo burst fields, the plurality of servo burst fields comprising:
  - a first normal burst field;
  - a first quadrature burst field, a portion of the first quadrature burst field being circumferentially contiguous with the first normal burst field and spanning a portion of a radial extent of the first normal burst field;
  - a second normal burst field, the second normal burst field being radially aligned with and away from the first normal burst field, the second normal burst field spanning a portion of a radial extent of the first quadrature burst field, and
  - a second quadrature burst field, the second quadrature burst field being radially aligned with and away from the first quadrature burst field, the second quadrature burst field spanning a portion of a radial extent of the second normal burst field,wherein the first normal burst field and the first quadrature burst field have a same first phase, the second normal burst field and the second quadrature burst field have a same second phase, the first phase being different than the second phase.
2. The disk drive of claim 1, wherein the disk defines a plurality of tracks defining a track width, and wherein each of the first and second normal burst fields and each of the first and second quadrature burst fields spans a radial extent that is greater than half of the track width.
3. The disk drive of claim 1, wherein the second quadrature burst field is contiguous with the first quadrature burst field.

4. The disk drive of claim 1, further comprising a write transducer having a write transducer width and wherein a width of the first and second normal burst fields and a width of the first and second quadrature burst fields are dictated by the write transducer width.

5. The disk drive of claim 1, wherein the first and second normal burst fields and the first and second quadrature burst fields are not trimmed after being written to the disk by the write transducer.

6. The disk drive of claim 1, further comprising a read transducer and wherein the sampled servo system controller includes a Discrete Fourier Transform (DFT) - type demodulator coupled to the read transducer, the DFT-type demodulator being configured to generate a servo correction signal that includes a servo correction magnitude and a servo correction direction from a phase information derived from the first normal and first quadrature burst fields read by the read transducer.

7. The disk drive of claim 1, wherein the disk is configured to enable the sampled servo system controller to determine a servo correction signal that includes a servo correction magnitude and a servo correction direction from a reading of only two circumferentially adjacent servo burst fields.

8. The disk drive of claim 1, wherein a difference between the first phase and the second phase is 180 degrees.

9. The disk drive of claim 1, wherein each of the first and second normal burst fields is circumferentially adjacent to at least one of the first and second quadrature burst fields.

10. A disk drive having a sampled servo system controller and a disk wherein the disk has a plurality of servo burst fields, the plurality of servo burst fields comprising:

a first normal burst field;

a first quadrature burst field, a portion of the first quadrature burst field being circumferentially contiguous with the first normal burst field and spanning a portion of a radial extent of the first normal burst field;

a second normal burst field, the second normal burst field being radially aligned with and away from the first normal burst field, the second normal burst field spanning a portion of a radial extent of the first quadrature burst field, and

a second quadrature burst field, the second quadrature burst field being radially aligned with and away from the first quadrature burst field, the second quadrature burst field spanning a portion of a radial extent of the second normal burst field,

wherein the first normal burst field has a first phase and the second normal burst field has a second phase that is different than the first phase, and wherein the first quadrature burst field has a third phase and the second quadrature burst field has a fourth phase that is different than the third phase.

11. The disk drive of claim 10, wherein the first phase is the same as the third phase and the second phase is the same as the fourth phase.

12. The disk drive of claim 10, wherein the second phase is the same as the third phase and the first phase is the same as the fourth phase.

13. The disk drive of claim 10, wherein a polarity of the first normal burst field is opposite to a polarity of the second normal burst field and wherein a polarity of the first quadrature burst field is opposite to a polarity of the second quadrature burst field.

14. The disk drive of claim 10, wherein the disk defines a plurality of tracks defining a track width, and wherein each of the first and second normal burst fields and each of the first and second quadrature burst fields spans a radial extent that is greater than half of the track width.

15. The disk drive of claim 10, wherein the second quadrature burst field is contiguous with the first quadrature burst field.

16. The disk drive of claim 10, further comprising a write transducer having a write transducer width and wherein a width of the first and second normal burst fields and a width of the first and second quadrature burst fields are dictated by the write transducer width.

17. The disk drive of claim 10, wherein the first and second normal burst fields and the first and second quadrature burst fields are not trimmed after being written to the disk by the write transducer.

18. The disk drive of claim 10, further comprising a read transducer and wherein the sampled servo system controller includes a Discrete Fourier Transform (DFT) - type demodulator coupled to the read transducer, the DFT-type demodulator being configured to generate a servo correction signal that includes a servo correction magnitude and a servo correction direction from a phase information derived from the first normal and first quadrature burst fields read by the read transducer.

19. The disk drive of claim 10, wherein the disk is configured to enable the sampled servo system controller to determine a servo correction signal that includes a servo correction magnitude and a servo correction direction from a reading of only two circumferentially adjacent servo burst fields.

20. The disk drive of claim 10, wherein a difference between the first phase and the second phase is about 180 degrees and wherein a difference between the third phase and the fourth phase is about 180 degrees.

21. The disk drive of claim 10, wherein each of the first and second normal burst fields is circumferentially adjacent to at least one of the first and second quadrature burst fields.